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Work and Workers of the First Twenty Years

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Fifty years ago, on the 3d of March, 1885, Congress appropriated \$5,000 for the promotion of "economic ornithology, or the study of the interrelation of birds and agriculture, an investigation of the food, habits, and migrations of birds in relation to both insects and plants." The money became available on the first of July following. Upon the recommendation of the American Ornithologists' Union, Dr. C. Hart Merriam, physician and lifelong student of natural history, was appointed head of the new project. He selected as his assistant Dr. A. K. Fisher, also well trained in field zoology and botany, and a graduate in medicine, and these two men, with a secretary, who in 1886 became Mrs. Merriam and was succeeded by Mrs. A. B. Morrison, constituted the entire force of the new organization. It was first established as a branch of the Division of Entomology. The year following the appropriation was doubled and the unit became an independent "Division of Economic Ornithology and Mammalogy." In 1896 the name was changed to "Division of Biological Survey." On March 3, 1905, just twenty years after the date of the first appropriation, the name was changed to the Bureau of Biological Survey.

Gradually, through the years, the little band that started the Survey--the Division of Ornithology and Mammalogy--was enlarged by the enlistment of other naturalists, mainly young men raised in many States from New England to California, who from boyhood had studied the birds and mammals and other wild inhabitants of the woods and fields about their rural homes, and including also a number of older men with extensive field and laboratory experience in various phases of natural-history study. During this period both Merriam and Fisher, for a part of nearly every year, carried on field work, mainly in the Western States or in Alaska, and published widely on their findings.

Merriam's contributions to distributional and systematic literature were especially extensive and important throughout the entire period to his retirement from the service in 1910. Fisher's publications, though less extensive, included a number of important reports. His bulletins on the food habits of hawks

and owls, and his defense of these widely persecuted birds, were especially notable, and formed the principal inspiration for many earnest students of the subject. In 1915 he organized the work of controlling predatory animals and injurious rodents and headed the operations for many years. He retired from the service in 1931.

In 1886 Walter D. Barrows, of Michigan, and Foster E. L. Beal of Massachusetts, both with wide experience in economic ornithology, joined the staff. Professor Barrows was in the service only a few years, but in that period prepared an extensive report on the English Sparrow (Bulletin No. 1 of the Bureau Series, 1889) and one on the crow (Bulletin No. 6, 1895). Following his resignation in 1894, he entered the service of the Michigan Agricultural College, where he continued the study of ornithology and in 1912 published a fine report on the Birds of the State, "Michigan Bird Life," and other notable papers. He died in 1923.

Professor Beal remained with the Bureau until his death in 1917, publishing a large number of important bulletins on economic ornithology, and training several young men who carried on the work after his death. His influence on the study of economic ornithology, and the consequent benefit to the birds, has been enormously important.

Prof. Wells W. Cooke, America's most eminent student of bird migration, first came to the Bureau for a few months in 1886, when he wrote an extensive report on Bird Migration in the Mississippi Valley, published as Bulletin 2, in 1888. He came back in 1901, and continued with the Survey until his death in 1916, preparing a notable series of bulletins on the distribution and migration of a number of groups of North American birds, and several general treatises on bird migration. One of his last publications, Department Bulletin No. 185, "Bird Migration," published 20 years ago, is still being distributed, and the fact that it has been reprinted 9 times, and that more than 8,000 copies have been sold, ranks it as one of the "best sellers" in its class at the Government Printing Office.

Vernon Bailey, who had previously contributed to Dr. Merriam's private mammal collection, joined the Bureau as a field naturalist in 1887. He was born in Michigan, whence his parents had pioneered to southern Minnesota when he was six years old. Brought up in what was then semiwilderness, with wildlife still abundant, he had been from early childhood absorbed in its study, and had improved every opportunity to learn its secrets.

After an experience that has made him more intimately familiar with the wildlife of the West and with its environment than that enjoyed by any other naturalist in America, Mr. Bailey retired from active service in 1933. He is the author of several voluminous reports on the natural history of States, including Texas, New Mexico, and North Dakota, and a large number of smaller areas, as well as several systematic revisions, and is still actively working to complete certain reports that embody some of the further results of his long and unique experience. During June there was transmitted for publication his report on the life zones and mammals of Oregon.

In 1889 a very important study was made of the distribution of life on San Francisco Mountain in Arizona, chiefly by Merriam and Bailey, but enriched by the

services of two other eminent zoologists, the late Frank H. Knowlton, paleobotanist of the Geological Survey and the United States National Museum; and Leonard Stejneger, who is still in active service in the Smithsonian Institution. This was the first exposition of the distribution by zones of the flora and fauna of a high North American mountain.

Theodore S. Palmer, who was instrumental in building up several important activities, and who was assistant chief and acting chief for 15 years, came to the work in 1889. For many years he was especially active in game preservation work, and made the first draft of the treaty with Canada for the protection of migratory birds. North American Fauna No. 23, comprising 984 pages, a list of the genera and families of mammals, published in 1904, and invaluable to anyone attempting to work in systematic mammalogy, is under his authorship. Since his retirement from the Bureau in 1933, Dr. Palmer has devoted himself to certain phases of ornithology and mammalogy of historic, biographic, and bibliographic interest, and to wildlife conservation.

A field expedition that covered a large area in south-central Idaho in 1890 brought to the service Clark P. Streater, already well known for his field work in the West Indies and in British Columbia. He remained in the Bureau for several years, and did important work in various parts of the United States, mainly on the West coast, including British Columbia and southern Alaska. His service terminated in 1896. His specimens, judiciously selected and well prepared, were always as representative as possible of the local fauna.

Basil H. Dutcher, who was first employed temporarily as a field naturalist in 1890, did notable work during a number of summers in Idaho, California, Montana, Wyoming, and several other States, usually accompanying Vernon Bailey. He studied medicine and became an army surgeon, seeing service in many fields, including the Philippines. He died in 1920.

The Death Valley Expedition of 1891 included in its personnel nearly all the men with field experience then in the Bureau, and in addition a few others. Edward W. Nelson, of Arizona, a naturalist with wide experience in the United States and Alaska, who had joined the force the year before, was prominent in the work. Another valuable worker was Frank Stephens, who had then been a resident of California for several years, and is still active in natural-history work there. Dr. Nelson remained in the Bureau until his retirement in 1929, after serving as assistant chief for 2 years and as chief for 11 years (1916-1927).

At the close of the work in the Death Valley region about December 1891, Nelson was detailed to work in Mexico, and on his way through southern California he employed Edward A. Goldman as assistant. They started field explorations on the west coast of Mexico early in 1892 and worked in Middle America almost continuously until about 1906, extending their researches through most of Mexico and Central America south to Panama.

Nelson published widely, both in the Bureau series and in outside media. Besides a large number of minor systematic papers, his output included revisions of several mammal groups, a comprehensive monograph on the natural resources of Lower California, and many important works on regional natural history. (For biographical note on Dr. Nelson, see THE SURVEY, vol. 15, no. 5, pp. 51-53, May 1934.)

Edward A. Goldman, after a number of years work in Mexico with Nelson, made his headquarters in Washington, where he prepared several revisional papers on mammal genera. In 1905 and 1906 he accompanied Nelson on an exploratory trip through Lower California, the work extending over nearly a year. Later, in 1910-1912, Goldman spent many months in a study of the Panama Canal Zone, in cooperation with the Isthmian Canal Commission. He published "Mammals of Panama" in 1920. He has since done much general field work, made extensive studies of the Mexican and Central American collections gathered in earlier years, and is the author of a number of important systematic papers, mainly on mammals.

In the meantime, in the fall of 1891, W. E. Clyde Todd, of Pennsylvania, was appointed as a general assistant. Although only 17 years of age, he already had an extensive field knowledge of the birds of western Pennsylvania. He remained with the Survey until 1899, when he resigned to accept a position with the newly established Carnegie Museum of Pittsburgh. There he continued his work on birds and soon became curator of ornithology, a position he still holds. He has published widely on systematic and regional ornithology, mainly of Central and South America, and has done extensive field work in northeastern Canada.

April 1892 witnessed the addition to the Survey's field force of J. Alden Loring, of New York. Loring was an enthusiastic collector, and during the next few years worked in most of the Western States and the southern part of the central Provinces of Canada. At this period the standard salary for a field man was \$100 a month, from which he had to pay all or nearly all his field expenses. For example, Loring thus financed two expeditions into the Rocky Mountains west of Edmonton, Alberta, the scene of the early labors of David Douglas and Thomas Drummond, by being allowed to spend the winter in Washington, and saving up for the summer's work. Loring left the service in 1897, but was reemployed for special duties on several occasions, notably in 1920, when he spent the summer on the great waterfowl breeding grounds in central Canada.

In April of the same year Russell J. Thompson and George A. Coleman received appointments to do field work, and after a few weeks training (along with Loring) under Vernon Bailey were assigned separate itineraries. Thompson worked in Georgia, Mississippi, Louisiana, and Tennessee during that summer and fall. Coleman began work in Mississippi, and later collected in Louisiana, Kentucky and Nebraska. Neither remained in the service later than 1893.

Edward A. Preble, of Massachusetts, came to the Survey at the same time. His field work has included expeditions in several of the Western States, but has

been carried on principally in north-central and western Canada and in Alaska. On three occasions, in 1900, 1901, and 1903, he was accompanied on field trips to northern Canada by his brother, Alfred E. Preble, now a school teacher in Massachusetts. In 1914, with Wilfred H. Osgood, of the Field Museum, and George H. Parker, of Harvard University, he served on a special commission to study the fur-seal herds on the Pribilof Islands, Alaska. The findings were published in an extensive report issued by the Department of Commerce in 1915, and later were touched upon by Preble in *North American Fauna* No. 46.

Arthur H. Howell came to the Bureau in 1895, serving his apprenticeship in northern Montana with Vernon Bailey. His periodical field service has taken him to many Western States, but his most notable work has been done in the South. He has published on the birds and life zones of Arkansas, on the mammals and life zones of Alabama, and on the life zones and birds of Florida, the last-named work by far the most important one ever published on the avifauna of that State. A large number of monographic revisions of mammal genera and many lesser systematic papers constitute the more important of his numerous publications.

Sylvester D. Judd, a zoologist with several years of field and laboratory experience, was appointed in 1895, and assisted Professor Beal in the study of economic ornithology for several years. He prepared a series of fine papers on the food taken by birds, one of the most notable of which was "Birds of a Maryland Farm" (1902); others dealt with the food of grouse, quail, and turkeys. Dr. Judd died in 1905.

In the same year came Harry C. Oberholser, of Ohio. He has done general field work in many States, notably in the Southwest, and is the author of many systematic and life-history studies of North American and foreign birds. Dr. Oberholser's eminence as an ornithologist has resulted in the Bureau's being requested to identify hundreds of collections of North and Middle American birds.

Gerrit S. Miller, Jr., was a member of the Survey staff for a few months in 1895, when he wrote several important papers on insectivores and rodents. He brought to the Bureau an experience that permitted him to produce a large amount of work in the short time he was with the Survey. He has been assistant curator and curator of mammals of the U. S. National Museum since 1898.

Wilfred H. Osgood and E. C. Starks came to the Bureau in 1897, both from California. Starks was a student of fishes, having studied under David Starr Jordan, and was especially skilled in the technic of cleaning delicate skeletal material, which was his principal occupation while with the Survey. He participated in only one field trip, when he accompanied Merriam and Fisher on the famous Harriman expedition to Alaska in 1899, resigning at its close. Osgood remained with the Survey until 1909, when he resigned to accept a position with the Field Museum at Chicago, where he is now curator of birds and mammals. While with the Survey he worked in many States, mainly in the West, and in the lower Maritime Provinces of Canada, and also led several expeditions to British Columbia, Yukon, and Alaska. He is author of

a number of important faunal reports and monographs and numerous miscellaneous papers, published in the various Bureau and Departmental series between 1900 and 1909.

Henry Oldys was a member of the Survey from 1899 to 1916. His principal work was in game-protection activities. He assisted in the compilation of several bulletins on various phases of conservation, including one on pheasant raising.

James H. Gaut, who had been associated with several of the more active naturalists about Washington, joined the staff of the Survey in 1899. He was an enthusiastic collector, and between 1889 and 1906 worked extensively in Texas, New Mexico, California, and other States. He died a few years later.

In 1902 Ned Hollister, of Wisconsin, and Merritt Cary, of Nebraska, came to the Bureau. Hollister accompanied Osgood to Alaska and Yukon on one or two trips, and also worked independently in British Columbia and southern Alaska and in many of the Western States. Later he had charge of the Bureau's mammal collection, and revised several mammal groups. He resigned at the close of 1909 to join the staff of the Smithsonian Institution, where he served first as assistant curator of the mammal collection, and later as Superintendent of the National Zoological Park. He was the first editor of the *Journal of Mammalogy*, serving from November 1919 until his death in November 1924, which was the result of an infectious disease contracted while on field duty in central Asia.

Cary participated in field work in many of the Western States and in central and northern Canada. His most important works were a biological survey and list of the mammals of Colorado, published in 1911, and on the life zones of Wyoming, published in 1917. He resigned in 1917 because of ill health, and died not long afterward.

Robert W. Williams came to the Bureau in 1902 from Florida. His work was mainly in connection with game-law administration, to which he brought an experience in law that led later to his filling the position of Solicitor of the Department. He resigned that position in 1929, and then reentered the service of the Survey. He is the author of a number of bulletins on game laws and game-law administration, and of a "History of Bird Protection in Florida," published in a chapter of Howell's "Florida Bird Life."

One of the ablest and most versatile of the naturalists of the Survey is Waldo L. McAtee. He joined the staff in 1903, and was chief assistant to Professor Beal in economic ornithology until 1917, and in charge of the Division of Food Habits Research until 1934. He has published a large number of important bulletins on the food of birds and on food plants of wild fowl. Eminent also in the study of botany and entomology, he has published widely on these subjects as well as on philosophic natural history.

Prof. David E. Lantz, of Kansas, a lifelong naturalist, and a teacher of long experience, came to the Bureau in 1904 and remained in the service until his death in 1918. His principal field of study was economic mammalogy, and he published a large number of bulletins that have been widely distributed.

Henry W. Henshaw, lifelong naturalist and ethnologist, and a member of several important early western exploring expeditions, joined the Bureau in 1905 as administrative assistant to Dr. Merriam. He was assistant chief for some years, and after Dr. Merriam's resignation served as chief from 1910 to 1916. His eminence as an all-round naturalist and his long experience in the West were of signal assistance in administrative matters. After his retirement he served in a consultant capacity for a period, and remained interested in the fortunes of the Bureau up to the time of his death in 1930. (For biographical note, see THE SURVEY, vol. 11, no. 8, pp. 93-93, Aug. 1930.)

During the early years the appropriations were small and the personnel limited in numbers, but the outstanding interest of the members of the staff and their devotion to duty enabled them to make noteworthy advancements in the field of science, and to place the Bureau in the foremost ranks of the world's scientific organizations engaged in wildlife research. They laid the foundation upon which the further development of the Bureau was based, and their labors should never be forgotten.

Published results of the Survey's varied lines of research during this early period were numerous and notable. Besides the many contributions that appeared in the various Departmental series--Technical Bulletins, Farmers' Bulletins, Yearbook Articles, Circulars, and the Journal of Agricultural Research, and in reports issued by other departments, there are three sets of publications, begun in the early days of our activities, that are peculiarly the Bureau's own. The most valuable and enduring are perhaps those of the North American Fauna series. These treat mainly of regional studies in natural history, and of technical monographs of groups of birds and mammals. In the period 1885 to 1905 there were issued 23 numbers of the North American Fauna. The smallest contained 36 pages; the largest, 984 pages; and one, 574 pages.

The other two were the Biological Survey Bulletins and the Circulars, 22 of the former and 48 of the latter having been issued in the period named. The subjects comprised mainly distribution, migration, food habits, and regional studies of birds and mammals; and protective legislation on game birds and mammals, song birds, and fur bearers. Besides these, many articles in less important series were published by the Bureau during the first 20 years of its existence, bringing the total of official publications to considerably more than a hundred.